

## Function Inverses

Date\_\_\_\_\_ Period\_\_\_\_

**State if the given functions are inverses.**

1)  $g(x) = 4 - \frac{3}{2}x$

$f(x) = \frac{1}{2}x + \frac{3}{2}$

2)  $g(n) = \frac{-12 - 2n}{3}$

$f(n) = \frac{-5 + 6n}{5}$

3)  $f(n) = \frac{-16 + n}{4}$

$g(n) = 4n + 16$

4)  $f(x) = -\frac{4}{7}x - \frac{16}{7}$

$g(x) = \frac{3}{2}x - \frac{3}{2}$

5)  $f(n) = -(n + 1)^3$

$g(n) = 3 + n^3$

6)  $f(n) = 2(n - 2)^3$

$g(n) = \frac{4 + \sqrt[3]{4n}}{2}$

7)  $f(x) = \frac{4}{-x - 2} + 2$

$h(x) = -\frac{1}{x + 3}$

8)  $g(x) = -\frac{2}{x} - 1$

$f(x) = -\frac{2}{x + 1}$

**Find the inverse of each function.**

9)  $h(x) = \sqrt[3]{x} - 3$

10)  $g(x) = \frac{1}{x} - 2$

11)  $h(x) = 2x^3 + 3$

12)  $g(x) = -4x + 1$

$$13) \ g(x) = \frac{7x + 18}{2}$$

$$14) \ f(x) = x + 3$$

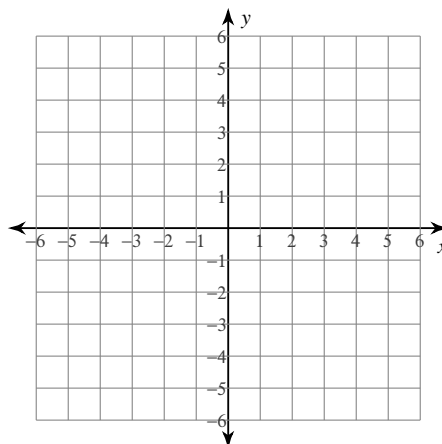
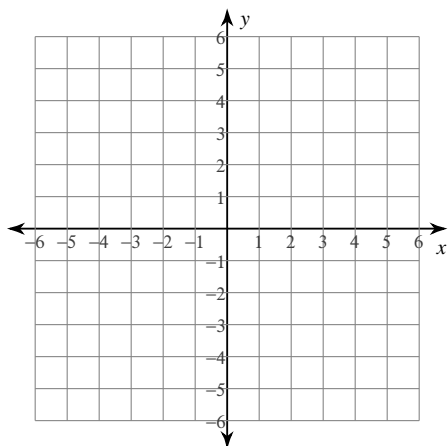
$$15) \ f(x) = -x + 3$$

$$16) \ f(x) = 4x$$

**Find the inverse of each function. Then graph the function and its inverse.**

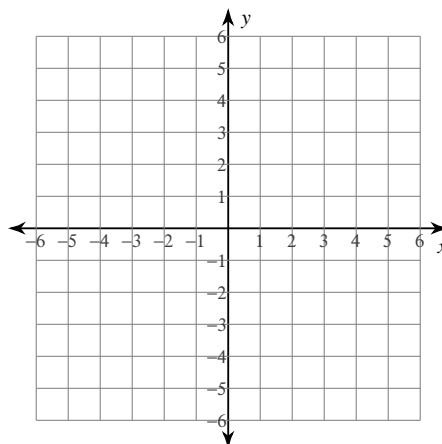
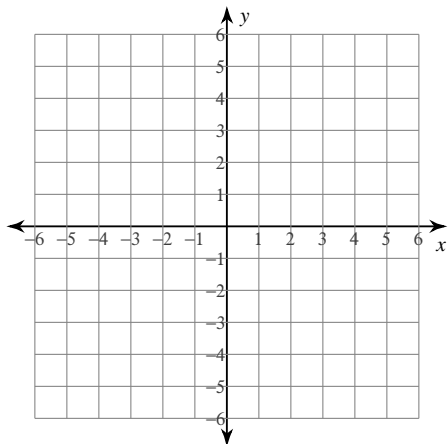
$$17) \ f(x) = -1 - \frac{1}{5}x$$

$$18) \ g(x) = \frac{1}{x - 1}$$



$$19) \ f(x) = -2x^3 + 1$$

$$20) \ g(x) = \frac{-x - 5}{3}$$



## Function Inverses

**State if the given functions are inverses.**

1)  $g(x) = 4 - \frac{3}{2}x$

$f(x) = \frac{1}{2}x + \frac{3}{2}$

No

2)  $g(n) = \frac{-12 - 2n}{3}$

$f(n) = \frac{-5 + 6n}{5}$

No

3)  $f(n) = \frac{-16 + n}{4}$

$g(n) = 4n + 16$

Yes

4)  $f(x) = -\frac{4}{7}x - \frac{16}{7}$

$g(x) = \frac{3}{2}x - \frac{3}{2}$

No

5)  $f(n) = -(n + 1)^3$

$g(n) = 3 + n^3$

No

6)  $f(n) = 2(n - 2)^3$

$g(n) = \frac{4 + \sqrt[3]{4n}}{2}$

Yes

7)  $f(x) = \frac{4}{-x - 2} + 2$

$h(x) = -\frac{1}{x + 3}$

No

8)  $g(x) = -\frac{2}{x} - 1$

$f(x) = -\frac{2}{x + 1}$

Yes

**Find the inverse of each function.**

9)  $h(x) = \sqrt[3]{x} - 3$

$h^{-1}(x) = (x + 3)^3$

10)  $g(x) = \frac{1}{x} - 2$

$g^{-1}(x) = \frac{1}{x + 2}$

11)  $h(x) = 2x^3 + 3$

$h^{-1}(x) = \sqrt[3]{\frac{x - 3}{2}}$

12)  $g(x) = -4x + 1$

$g^{-1}(x) = -\frac{1}{4}x + \frac{1}{4}$

$$13) g(x) = \frac{7x+18}{2}$$

$$g^{-1}(x) = \frac{2x-18}{7}$$

$$14) f(x) = x + 3$$

$$f^{-1}(x) = x - 3$$

$$15) f(x) = -x + 3$$

$$f^{-1}(x) = -x + 3$$

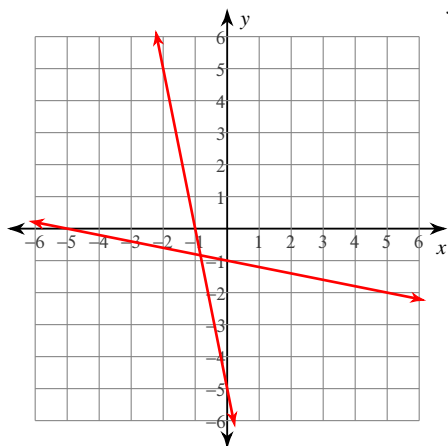
$$16) f(x) = 4x$$

$$f^{-1}(x) = \frac{x}{4}$$

**Find the inverse of each function. Then graph the function and its inverse.**

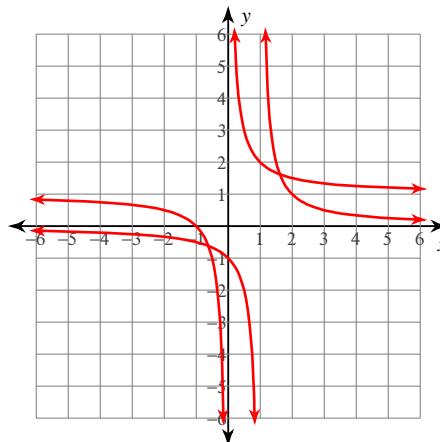
$$17) f(x) = -1 - \frac{1}{5}x$$

$$f^{-1}(x) = -5x - 5$$



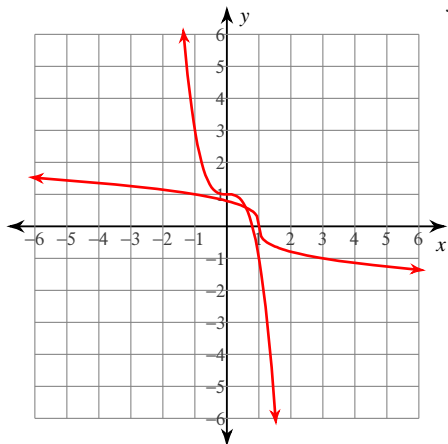
$$18) g(x) = \frac{1}{x-1}$$

$$g^{-1}(x) = \frac{1}{x} + 1$$



$$19) f(x) = -2x^3 + 1$$

$$f^{-1}(x) = \sqrt[3]{\frac{-x+1}{2}}$$



$$20) g(x) = \frac{-x-5}{3}$$

$$g^{-1}(x) = -3x - 5$$

